

## CLAIMS

1. A method for identifying a gene product function, wherein the method comprises: adding at least one gene product to a compound cocktail; reacting the mixture; detecting a change that occurred in the compound cocktail; and thereby identifying the function of the gene product.  
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2. The method of claim 1, wherein the at least one gene product is obtained by expressing at least one gene encoding the gene product.
- 10 3. The method of claim 1 or 2, wherein the compound cocktail is a metabolic compound cocktail.
4. The method of claim 3, wherein the metabolic compound cocktail comprises a compound(s) selected from the group consisting of fructose-1,6-phosphate, 6-phosphogluconate, 15 2,3-phosphoglycerate, glucose-1-phosphate, fructose-6-phosphate, glucose-6-phosphate, ribulose-5-phosphate, ribose-5-phosphate, erythrose-4-phosphate, isocitric acid, citric acid, 2-phosphoglycerate, 3-phosphoglycerate, cis-aconitic acid, phosphoenolpyruvic acid, succinic acid, fumaric acid, lactic acid, and pyruvic acid.
- 20 5. The gene product function identification method of claim 1 or 2, wherein the compound cocktail is a cell extract.
6. The method of any one of claims 1 to 5, wherein the change is detected using a capillary electrophoresis-mass spectrometer (CE/MS).  
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7. A method for identifying a binding substance to a gene product, wherein the method comprises: adding at least one gene product to a compound cocktail; reacting the mixture; detecting a change that occurred in the compound cocktail; and thereby identifying a binding substance of the gene product.  
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8. A kit for identifying a gene product function, wherein the kit comprises a compound cocktail, and the function is identified by adding at least one gene product to the compound cocktail, reacting the mixture, and detecting a change occurred in the compound cocktail.
- 35 9. The kit of claim 8, wherein the compound cocktail is a metabolic compound cocktail.

10. The kit of claim 9, wherein the metabolic compound cocktail comprises a compound(s) selected from the group consisting of fructose-1,6-phosphate, 6-phosphogluconate, 2,3-phosphoglycerate, glucose-1-phosphate, fructose-6-phosphate, glucose-6-phosphate, ribulose-5-phosphate, ribose-5-phosphate, erythrose-4-phosphate, isocitric acid, citric acid,  
5 2-phosphoglycerate, 3-phosphoglycerate, cis-aconitic acid, phosphoenolpyruvic acid, succinic acid, fumaric acid, lactic acid, and pyruvic acid.
11. The kit of claim 8, wherein the compound cocktail is a cell extract.
- 10 12. A kit for identifying a binding substance of a gene product, wherein the kit comprises a compound cocktail, and the binding substance is identified by adding at least one gene product to the compound cocktail, reacting the mixture and detecting a change that occurred in the compound cocktail.